BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

MIDWEST GENERATION, LLC	)	
	)	
Petitioner,	)	PCB 20-38 & 20-39
	)	(Thermal Demonstration - Water)
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY	)	(Consolidated)
	)	
	)	
Respondent.	)	

NOTICE OF FILING

To:

Don Brown, Clerk of the Board Illinois Pollution Control Board James R. Thompson Center, Suite 11-500 100 W. Randolph Street Chicago, IL 60601 don.brown@illinois.gov	Sara Terranova – Assist Counsel Illinois Environmental Protection Agency 1021 N. Grand Avenue East P.O. Box 19276 Springfield, IL 62794 sara@terranova@illinois.gov
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PLEASE TAKE NOTICE that I have today electronically filed with the Office of the Clerk of the Pollution Control Board Midwest Generation, LLC Joliet Generating Station 9 and Joliet Generating Station 29 Alternative Thermal Effluent Limitation Demonstration Responses to Illinois Pollution Control Board Questions for Petitioner, a copy of which is herewith served upon you.

Dated: September 9, 2020

MIDWEST GENERATION, LLC

By: ___/s/Susan M. Franzetti_____

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CERTIFICATE OF SERVICE

The undersigned, an attorney, certifies that a true copy of the foregoing Notice of Filing, and Midwest Generation, LLC Joliet Generating Station 9 and Joliet Generating Station 29 Alternative Thermal Effluent Limitation Demonstration Responses to Illinois Pollution Control Board Questions for Petitioner was electronically filed on September 9, 2020 with the following:

Don Brown, Clerk of the Board
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and that copies were emailed on September 9, 2020 to the parties listed above.

Dated: September 9, 2020 /s/Susan M. Franzetti

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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

MIDWEST GENERATION, LLC	**)**	
Petitioner,	**)**	
v.	**)**	**PCB 2020-38 & 2020-039 (Consolidated)**
ILLINOIS ENVIRONMENTAL	**)**	**(Thermal Demonstration)**
PROTECTION AGENCY	**)**	
Respondent.	**)**	

MIDWEST GENERATION, LLC JOLIET GENERATING STATION 9 AND JOLIET GENERATING STATION 29 ALTERNATIVE THERMAL EFFLUENT LIMITATION DEMONSTRATION RESPONSES TO ILLINOIS POLLUTION CONTROL BOARD QUESTIONS FOR PETITIONER.

1. The petitions state that "[t]he estimated retirement date for Joliet 9 is 2030." Pet. at 10. Does MG plan to replace it with an additional unit at that time? See 35 Ill. Adm. Code 1130(a)(6).

RESPONSE: While market conditions will be evaluated closer to 2030, there is no current plan to replace Joliet 9 with an additional unit upon Joliet 9's retirement.

2. The petitions state that discharge temperatures from Joliet Station 9 in the summer months are as high as 98.1oF. Pet. at 12. However, the Proposed Near Field limit for July and August is only 93oF. Please comment on how often MG expects discharge temperatures above this Proposed Near Field Limit and the availability of excursion hours.

RESPONSE: To provide further clarification, in the Petition at 12, the maximum summer discharge temperature for Joliet Station 9 for the period reviewed in the Demonstration was 100^{o}F in July and the maximum measured August discharge temperature was 98.1^{o}F.

In the Demonstration's Appendix D (Pages D-14 and D-15), where each station's operational data are presented in detail, it was noted in Section 6.2 that all of the discharge temperatures in Table D-1a for Joliet Station 9 and Table D-1b for Joliet Station 29 represented end-of-pipe temperatures, which would only be considered as compliance temperatures under the most extreme worst-case conditions where there is no available near-field mixing available in the receiving waterbody. These end-of-pipe temperatures are the temperatures discussed in the Petition at 12. Because compliance with the Proposed Near Field limit is determined at the edge of the allowed mixing zone, these end-of-pipe temperatures do not determine compliance and do not require the use of excursion hours to maintain compliance.

Under most circumstances, the calculated edge-of-mixing-zone compliance temperatures would be several degrees cooler than end-of-pipe temperatures, due to combined effects of mixing with cooler river water, weather-related heat dissipation, and sometimes cooling tower use at Joliet Station 29. Therefore, the proposed AELs are expected to be met under most expected summer conditions, even if the end-of-pipe discharge temperatures are higher than the Proposed Near Field Limit.

Because station-specific near-field thermal models used to calculate the edge-of-mixing-zone compliance temperatures are based on both real-time river-flow conditions and 24-hr average antecedent flow conditions, it was not possible to provide a full range of expected compliance temperatures in the Petition based on every possible combination of variables, which is why end-of-pipe values were used as an extremely conservative representation of compliance temperatures. However, the historical compliance records for both stations as well as the Thermal Demonstration Study, conducted based on a Detailed Plan of Study approved by IEPA, reliably establish that Joliet Station 9 and Joliet Station 29 will be able to consistently meet the proposed Near-Field AELs, which include a sufficient extended temperature range within the requested excursion hour period to cover those periods when adverse compliance conditions may occur. Based on operational history, the extreme events illustrated by hydrothermal modeling Scenario 1 (Appendix D, Page D-67) have occurred less than 5% of the time, on average, over a six-year period (2012-2017).

In any event, if on rare occasion where extreme conditions cause the requested number of near-field excursion hours get close to becoming exhausted, MWGen will take the necessary measures to remain in compliance with the maximum proposed summer AELs.

> 3. Also for Joliet 9, the proposed December and March far-field temperature limit is 65°F and near-field temperature limit is 70°F, but the petition notes that the discharge temperature has reached 80.8°F. Pet. at 13. Please comment on how often MG expects discharge temperatures above the proposed limits and the availability of excursion hours.

RESPONSE: Consistent with the response to Question 2, the maximum winter discharge temperatures discussed in the Petition for both Joliet Station 9 and Joliet Station 29 are <u>end-of-pipe</u> temperatures, which are not necessarily indicative of the calculated Near-Field edge-of-mixing-zone compliance temperatures, nor equivalent to expected Far-Field compliance temperatures (See Demonstration, Appendix D, Tables D-1a and D-1b; Discussion in Section 6.2). With sufficient river flow and ambient cooling, compliance temperatures are expected to be within the proposed winter Near-Field AEL temperatures most of the time. Far-Field compliance temperatures, especially during the winter months, would be expected to be even lower, due to the additional travel time involved, which normally affords the opportunity for additional ambient cooling to take place. (This is illustrated by the historical I-55 temperature data summarized in Appendix D, Table D-23b). This is the reasoning behind proposing lower Far-Field AELs than the corresponding month Near-Field AELs for the winter period.

As with the proposed summer AELs, the Demonstration shows that both Joliet Stations will be able to meet the proposed Near-Field winter AELs at their respective compliance points, which

include an extended temperature range within the requested excursion hour period to cover those periods when adverse compliance conditions occur. Based on the far-field hydrothermal modeling done as part of the Demonstration (Appendix D), as well as historical monitoring data collected by MWGen at the I-55 Bridge under varying station operating, weather, and river flow conditions, the requested December and March far-field AEL of 65°F is expected to be met most of the time, and there is a sufficient extended temperature range within the requested Far-Field excursion hour period to cover those limited times when unseasonable conditions may limit downstream cooling.

Under extreme conditions, should the requested number of Near- or Far-Field excursion hours get close to becoming exhausted, MWGen will take whatever measures necessary to remain in compliance with the maximum proposed winter Near-Field and Far-Field AELs.

> 4. The petitions state that, "[a]t ambient temperatures exceeding 45°F, cold shock typically does not occur, regardless of the magnitude of the change." Pet. at 29. The demonstration adds that, "if the Joliet Stations were to suddenly cease discharging, the expected drop in ambient temperatures is not expected to fall significantly below the 45ºF threshold where cold shock could result in adverse impacts." Demonstration at 5-5. However, the petitions note that, "[i]n the case of Joliet Stations, mean winter ambient temperatures are normally between 40.6°F to 48.1°F." Pet. at 29. Please comment on how often the winter water temperature dips below 45°F. What temperature drop below 45ºF would be considered significant to cause cold shock?

RESPONSE: Ambient winter water temperatures in the Lower Des Plaines River (LDPR) were at or below 45°F approximately 60% of the time during the period of record reviewed as part of the Demonstration (Appendix D, Tables D-1c [Joliet 9] and D-1d [Joliet 29]), but were also at or above 40°F from 80 to 85% of the time. Water temperatures lower than 40°F upstream of the Stations were infrequent due to the dominant influence of the upstream Metropolitan Sanitary District of Greater Chicago (MWRDGC) Publicly Owned Treatment Works (POTW) effluent, which maintains consistent ambient winter temperatures in the waterway within the 40-45°F range. Many of the lower winter intake temperature values in the Appendix D Tables D-1c (Joliet 9) and D-1d (Joliet 29) were likely reflective of periods when the generating units were not operating, during which time intake temperature monitors may have experienced localized conditions that were not necessarily representative of the main body of the waterway.

Based on the need to prevent cold shock deaths, Brungs and Jones (1977)[1] plotted permissible plume temperatures against ambient temperatures. Coutant (1977)[2] provided additional data to show that if ambient temperatures are in this range (i.e., 40-45°F), a temperature drop of up to 27°F (i.e., a weekly average fully mixed discharge temperature of 67-72°F) would not cause cold

[1] Brungs, W. and B Jones. 1977. Temperature criteria for fish: protocol and procedures. USEPA, Duluth, MN. EPA-600/3-77-061.
[2] Coutant, C. C. 1977. Cold shock to aquatic organisms: guidance for power-plant siting, design, and operation. In Environmental Effects (edited by R. O. Chester and J. E. Till). Nuclear Safety 18(3): 329-342.

shock mortality even if a unit were to shut down suddenly. The maximum design delta T across the Joliet condensers is approximately 9-10°F at full load, which is far below the temperature change that might lead to cold shock, particularly under existing ambient conditions.

In addition, as discussed in the Petition on Pages 29-30, the Joliet units continue to discharge heated effluent for several hours following a shut down, thereby allowing for a more gradual transition back to ambient temperatures that further minimizes the risk of cold shock mortality. Since their conversion to natural gas, the Joliet Stations have not, and are not typically expected to, run for significantly long periods of continuous time during the winter months to allow for acclimation of aquatic life to higher temperatures. This further reduces the risk of cold shock even when a station shutdown occurs during the winter.

In sum, all of these factors serve to limit the potential for cold shock to occur in the UDIP due to the operation of the Joliet Stations. Indeed, there have been no known "cold shock" incidents in the UDIP/Five Mile Stretch since the Joliet Stations began operating as "peaker" plants, nor were there any such incidents documented in the past when the two stations were operated in a more base-loaded manner.

> 5. The petitions state that, "[a]s of the filing of this Petition, U.S. EPA has not yet provided any comments or questions on the Demonstration Report." Pet. at 6. Since MG filed the petitions on December 30, 2019, has USEPA provided MG with a response? If so, please submit any written response into the record.

RESPONSE: MWGen has had no contact with U.S. EPA since filing its petition. IEPA's April 2020 Recommendation in this proceeding discloses that IEPA had multiple phone conversations with U.S. EPA officials sometime after this proceeding was initiated. PCB 20-38 & -39, *Recommendation of the Illinois Environmental Protection Agency*, at p. 11 (filed April 29, 2020). MWGen counsel Susan Franzetti has communicated with counsel for IEPA, Sara Terranova, who relates that U.S. EPA expressed no objections to the Demonstration Report during these conversations.

> 6. In Appendix A, Figure A-4b, both tables are listed as "Mean Monthly Intake Temperatures 2012-2018". As in Figure A-4a, is the lower table intended to be "Maximum Monthly Intake Temperatures 2012-2018?"

RESPONSE: Yes, the header in the second table in Figure A-4b is incorrect and should read "Joliet Station 29 Maximum Monthly Intake Temperature 2012-2018". A corrected version of Figure A-4b is attached to this response as Attachment 1.

USEPA Interagency 316(a) Technical Guidance Manual 3.3.5 Fish

7. The Demonstration notes that catches of Pallid Shiner, a state-endangered species in Illinois, were highest in 2003 and 2004 but catches have since declined because expansion of aquatic macrophytes has reduced sampling efficiency in the Five-Mile Stretch. Demonstration at 4-9. Please comment in detail on how sampling efficiency has been affected by aquatic macrophytes.

Also, please summarize the sampling data to show whether the numbers for Pallid Shiner show an upward or downward trend since it was first caught in the study area.

RESPONSE: The language used in the Demonstration regarding "decline" was somewhat misrepresentative in that what was observed is not an actual population decline; there were two years (2003-2004) when the number of Pallid Shiner collected was inordinately high. This same pattern was seen in the data collected during the same two years downstream near the Dresden Nuclear Power Station.[3] In most years, catches in the Upper Dresden Island Pool (UDIP) study area have ranged from none to three, with a slight increase in recent years. The first record of Pallid Shiner occurred in the MWGen study area in 2000 (2001 was incorrect in the Demonstration Summary at Page 4-9).

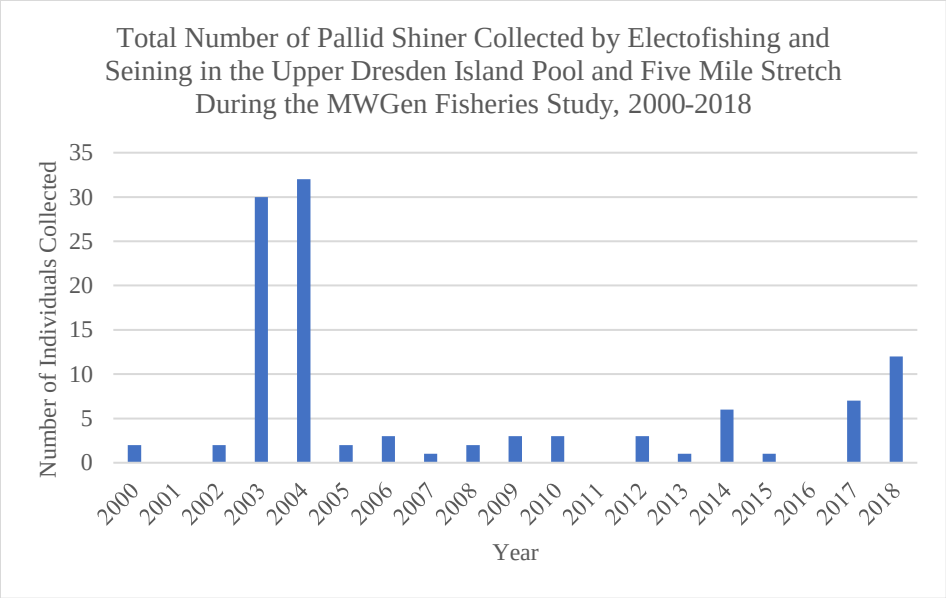
Additional information on this species, found in the Demonstration Summary Document on Page 4-14 (second to last paragraph), shows that Pallid Shiner has been consistently found in low numbers throughout the UDIP study area. As a state-listed endangered species, low numbers would be expected, but catches may also be further influenced by the dense aquatic plant growth (i.e., aquatic macrophytes expansion) in some sampling locations, which makes it difficult for biologists to get into the sampling areas and/or to collect fish by electrofishing and seining. This limits the effectiveness of sampling by restricting the overall sampling area and/or reducing sampling efficiency. This reduced sampling efficiency can affect overall catch rates for many species.[4]

As requested, a summary of Pallid Shiner numbers is included below. Totals include all samples for the entire LDPR study area below the two Joliet stations (this information was also included in tabular form in Table C-7 of Demonstration Appendix C):

[3] EA 2004. Final Report, Dresden Station Aquatic Monitoring, 2003, Upper Illinois Waterway. River Mile 270.5-273.4. Prepared for Exelon Nuclear-Dresden Generating Station. December 2004.

EA 2005. Final Report, Dresden Station Aquatic Monitoring, 2004, Upper Illinois Waterway. River Mile 270.5-273.4. Prepared for Exelon Nuclear-Dresden Generating Station. December 2005.

[4] This is discussed in the annual fisheries monitoring reports included as Appendices F, G, and H of the Demonstration document.



These data indicate a slight increase in the number of Pallid Shiner collected from the UDIP and Five-Mile Stretch study areas in 2017 and 2018. Most of these were collected closer to the Kankakee River where more suitable habitat exists for this species.

8. The Demonstration notes that there is a strong indication that "the Banded Killifish found in nonpreferred habitats in the CSSC, LDPR, and elsewhere in northern Illinois are actually the invasive subspecies, "Eastern Banded Killifish," and not the state-threatened "Western Banded Killifish." Demonstration at 4-9.

Please comment on whether the rationale changes if the suspected State-listed Western Banded Killifish turns out to be the invasive Eastern Banded Killifish.

RESPONSE: The rationale would not change because adverse impacts on the overall balanced indigenous community (BIC), including either Banded Killifish subspecies, are not expected to occur as the result of the Joliet Station 9 and Joliet Station 29 thermal discharges. Water temperature has not been found to either attract nor cause long-term avoidance for both native and invasive species in the LDPR or the Upper Illinois Waterway as a whole.

9. Has IDNR provided any additional information on distinguishing between the two Banded Killifish species?

RESPONSE: Yes, IDNR recently published an update to the Illinois Threatened and Endangered Species list (May 28, 2020, 17 IL. Adm. Code Ch. I, Sec. 1010—attached for reference as Attachment 2), which recognizes only the Western form of the Banded Killifish (*Fundulus diaphanus menona*) as threatened. While there is still ongoing research being conducted on the geographic range of the Western subspecies, data collected by natural resource agencies and other researchers in the Upper Illinois Waterway suggest that it is the non-listed Eastern subspecies (*Fundulus diaphanus diaphanus*) that prevails in the LDPR (June 2020 presentation by Nathan Grider, Illinois Department of Natural Resources, Office of Realty and Capital Planning Impact Assessment Section).

10. Regarding the increasing numbers of the State-Listed Banded Killifish, please comment on whether MG would be adverse to additional surveillance of their numbers in the study area if the Board grants an alternative standard?

RESPONSE: MWGen is continuing their annual fisheries monitoring program in the LDPR, including the UDIP, as part of the Joliet Station 9 and 29 NPDES Permits in Special Conditions 17 and 18, respectively, which include monitoring for the Banded Killifish population. Thus, it is not necessary to condition a grant of an alternative standard on additional surveillance of their numbers because this is something that the IEPA already requires of MWGen.

What's more, the monitoring required by the Stations' NPDES permits is not the only monitoring that will take place in the LDPR. There is also continued fisheries monitoring work in this waterway by the Illinois Department of Natural Resources, as well as other natural resources agencies involved with the Asian Carp Regional Coordinating Committee (ACRCC) monitoring programs, that would provide similar information.

11. At page 2 of the Petitions, footnote 2 states that, "although the Board's regulations assign different Designated Uses to the UDIP and Five-Mile Stretch, there is little meaningful ecological difference between these adjacent waterbodies." At page B-1 of Appendix B, footnote 1 states that "there is a common BIC for both the UDIP and the Five-Mile Stretch." Are these statements correct, and does MG's Demonstration appropriately address a single biological community inhabiting both portions and a common BIC? See Pet. at 2.

RESPONSE: The intent of the Demonstration for both Joliet Station 9 and Joliet Station 29 was to assess whether appreciable harm has resulted from their thermal discharges, and whether appreciable harm would be expected under the proposed AELs. Accordingly, the BIC of the contiguous segment of the LDPR formed by the UDIP and Five-Mile Stretch was considered as a single biological community.[5] Analyses conducted as part of the Demonstration process assessed a set of IEPA-approved representative important species (RIS) that adequately reflect the aquatic community found within the entire UDIP and the Five-Mile Stretch. However, to reflect the slight improvements in available habitat that exist downstream of the I-55 Bridge, MWGen proposed more stringent Far-Field AELs, beginning at the I-55 Bridge and continuing downstream, to reflect habitat differences upstream and downstream of the I-55 Bridge and to ensure adequate protection of the BIC throughout this area.

12. At page 21 of the Petitions, the "Proposed UDIP Thermal AELs" do not appear to be entirely consistent with the "Proposed Near-Field AELs for Joliet Stations 9 and 29" at page 32. Please clarify whether the proposed Near-Field AELS on page 32 are the correct limits consistent with the proposed ATELs in MG's Demonstration at page 3-12.

[5] As noted in the Joliet Subpart K Petitions, the UDIP and Five-Mile Stretch comprise most of the LDPR. However, the Brandon Pool upstream from the Brandon Road Lock and Dam is also within the LDPR. The Brandon Pool would not be subject to the relief requested in the Petition.

RESPONSE: The Board's question accurately flags this discrepancy. The Proposed UDIP Thermal AELs on Page 21 of the Petition are not correct, while those on Page 32, as well as in the Demonstration on Page 3-12, are reflective of the proposed Near-Field AELs for each Joliet Station. The correct proposed values are also included below:

Month	Proposed Near-Field AELs for Joliet Stations 9 and 29 (°F)
January	65
February	65
March	70
April	80
May	85
June	93
July	93
August	93
September	93
October	90
November	85
December	70

Proposed ATEL Language

13. The petitions state that the proposed "near-field thermal alternative effluent limits for the Joliet Stations are effective at the edge of each Station's respective 26-acre mixing zone, as determined for compliance monitoring purposes through the continued use of the Joliet Stations' Near-Field Models under the terms of their respective NPDES Permits." Pet. at 32. Please clarify whether the far-field alternative thermal limits apply at the I-55 Bridge.

RESPONSE: Yes, the Far-Field alternative thermal limits apply at the I-55 Bridge.

If so, please comment on whether MG will rely on models to determine compliance with the far-field limits. Also, please comment on whether the proposed condition (3) in the ATEL language proposed below adequately addresses compliance with the ATEL.

RESPONSE: MWGen will continue to rely on its Far-Field Thermal Compliance Model, as necessary, to ensure continuing compliance with the Far-Field limits. This is discussed in the Petition on Pages 13, 14, and 32, the Demonstration Summary Document on Pages 3-4 and 3-15, as well as detailed in Appendix D, Exhibit D-1b (Far-Field Thermal Compliance Model). However, MWGen's reporting of far-field compliance temperature will remain based on a calibrated real-time temperature monitoring system installed at the I-55 Bridge. This differs

from the compliance temperature that will be reported for the Near-Field AELs, which will be a calculated value based the output of each Joliet Station's Near-Field Compliance Model.

Therefore, in order to provide further clarity on how compliance will be reported and assessed under the proposed AELs, it will be necessary to include separate requirements for the Near-Field and Far-Field. This is already detailed in each station's current NPDES permit under Special Condition 4, which could be easily modified for the proposed Near-Field and Far-Field AELs as part of the implementation process. MWGen does not believe that these details need to be included with the AEL language, as they will be included in the implementation requirements of the NPDES permit conditions for the Joliet Stations that address the AELs.

> 14. MG proposed language for the Joliet Stations' ATEL. Pet. at 31-33. MG also provided clarification regarding IEPA's recommended conditions. See Pet. Resp. at 2-6, Exh. A. IEPA accepted MG's clarifying language pertaining to excursion hours, the use of cooling towers, and the thermal loading limitation concerning relief to downstream dischargers. IEPA Rep. at 4. Please comment on revisions below for the proposed ATEL, which are based on the Board's order in PCB 18-58 and reflect IEPA's recommendations except for the condition concerning downstream dischargers.

RESPONSE: The revisions for the proposed ATEL are generally acceptable to MWGen. MWGen has provided the following suggested further revisions shown in the redlined version of the proposed ATEL set forth below. These additional revisions are proposed to correct a paragraph numbering error (i.e., two consecutive subparagraphs were both numbered "c" instead of "c" and "d") and to ensure that the language and intended meaning of the proposed ATEL is consistent, comprehensive, and clear.

In both subparagraphs (1)(d) and (e), MWGen suggests that the word "temperature" be deleted from the phrase "thermal effluent temperature limitations" so that the revised phrasing is simply "thermal effluent limitations." This provides consistency with the language in proposed subparagraph (1)(a) which uses the same "thermal effluent limitations" phrasing. Also, the use of both "thermal" and "temperature" is somewhat redundant, but at the same time it is potentially too narrow in scope. Subparagraphs (1)(d) and (1)(e) are intended to cover not only the "temperature" numeric values included in the ATEL but also the other thermal limitations in the ATEL relating to excursion hours. Hence, in order to ensure that the scope and meaning of these subparagraphs is comprehensive, the word "temperature" should be deleted.

The proposed revision to subparagraph (1)(d) to add the reference to subparagraph "(1)(b)" is appropriate because both subparagraphs (1)(a) and 1(b) contain the "near-field thermal effluent limitations" that subparagraph (1)(d) references and addresses. For the same reason but relating to the "far-field thermal effluent limitations", subparagraph (1)(e) is revised to add the reference to subparagraph (1)(c) which also contains far-field thermal effluent limitations.

The additional subparagraph (1)(d) proposed revision relating to mixing zones is intended to clarify that each of the two Joliet Stations' thermal discharges has its own 26-acre mixing-zone and therefore, the near-field ATEL thermal effluent limitations for each of the Stations' apply at the edge of their respective mixing zones.

The proposed revision to subparagraph (1)(e) anticipates the possibility that this AEL will appear in contexts outside of just the Board's order. The change to subparagraph (2) offers a little more guidance on the contexts in which the Joliet 29 Generating Stations Cooling Towers will operate.

The proposed revision to subparagraph (2) is for purposes of clarity. The revised language clearly provides that MWGen is to continue its prior practice of minimizing the use of excursion hours through its operation of the Joliet 29 cooling towers but recognizes that these cooling towers cannot be, and are not, operated at all times.

PROPOSED REVISED ATEL LANGUAGE:

Under 35 Ill. Adm. Code 106.Subpart K and 35 Ill. Adm. Code 304.141(c), the Board orders that the following alternative thermal effluent limitations apply to the discharges to the Upper Dresden Island Pool (UDIP) from Midwest Generation, LLC's (Midwest Generation) Joliet Generating Stations 9 and 29.

1. Temperature

a. Instead of thermal effluent limitations based on the General Use thermal water quality standards contained in 35 Ill. Adm. Code 302.211 and the Upper Dresden Island Pool (UDIP) Use thermal water quality standards provisions contained in 35 Ill. Adm. Code 302.408 (c)-(f), and (i), the following daily maximum temperature effluent limitations apply to Joliet Stations 9 and 29:

Month	Daily Maximum Near-Field (UDIP) (°F)	Daily Maximum Far-Field (Five-Mile Stretch) (°F)
January	65	60
February	65	60
March	70	65
April	80	73
May	85	85
June	93	90
July	93	91
August	93	91
September	93	90
October	90	85
November	85	75
December	70	65

b. Instead of the water temperature requirements of 35 Ill. Adm. Code 302.408(c), (d), (e), (f) and (i) applicable to UDIP, effluent temperatures must not exceed the near-field daily maximum temperature limitations in paragraph (1)(a) during more than 5% of the hours (438 hours) in a calendar year. Moreover, the effluent temperature must never exceed the daily maximum near-field temperature limitations in paragraph (1)(a) by more than 3°F.

c. Instead of the water temperature requirements of 35 Ill. Adm. Code 302.211 applicable to the Five-Mile Stretch, effluent temperatures must not exceed the daily maximum far-field temperature limitations in paragraph (1)(a) during more than 2% of the hours (175 hours) in a calendar year. Moreover, the effluent temperature must never exceed the daily maximum far-field temperature limitations in paragraph (1)(a) by more than 3°F.

d. The alternative near-field thermal effluent limitations in paragraphs (1)(a) and (1)(b) apply at the edges of each of two 26-acre mixing zones allowed in each of the Joliet Generating Stations' National Pollutant Discharge Elimination System (NPDES) permits.

e. The alternative far-field thermal effluent limitations in paragraphs (1)(a) and (1)(c) apply at the I-55 Bridge (River Mile 277.9). For purposes of this order, the "Five-Mile Stretch" is the segment of the Lower Des Plaines River starting from the I-55 Bridge (River Mile 277.9) to the Illinois River (River Mile 273.0).

2. Midwest Generation will continue to minimize the use of excursion hours through the use of its Joliet 29 Generating Station Cooling Towers.

3. Compliance.

(a) Midwest Generation must demonstrate compliance with the near-field temperature limits in paragraph (1) by modeling that is approved by the Illinois Environmental Protection Agency (IEPA) as a condition of each of the Joliet Stations' NPDES permits.

(b) Midwest Generation must demonstrate compliance with the far-field temperature limits in a manner that is approved by the IEPA as a condition of each of the Joliet Stations' NPDES Permits.

4. NPDES Permit. IEPA must expeditiously modify Midwest Generation, LLC's NPDES permits for the Joliet Generating Stations to make the permits consistent with this opinion and order.